## (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 21 September 2006 (21.09.2006)

(10) International Publication Number WO 2006/098540 A1

- (51) International Patent Classification<sup>7</sup>: H01L 33/00, H05B 33/22, H01L 51/20
- (21) International Application Number:

PCT/KR2005/003084

(22) International Filing Date:

16 September 2005 (16.09.2005)

(25) Filing Language:

Korean

(26) Publication Language:

English

(30) Priority Data:

10-2005-0022217 17 March 2005 (17.03.2005) KR

- (71) Applicant (for all designated States except US): SAM-SUNG ELECTRONICS CO., LTD [KR/KR]; 416, Maetan Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do (KR).
- (72) Inventors; and
- **(75)** Inventors/Applicants (for US only): CHO, Kyung Sang [KR/KR]; 485-13, Gwacheon-Dong, Gwacheon-Si, Gyeonggi-Do (KR). CHOI, Byoung Lyong [KR/KR]; Ga-103, Sinsung Bila, 593-94, Bangbae 3-Dong, Seocho-Gu, Seoul (KR). KIM, Byoung Ki [KR/KR]; 106-210, Donga Apt., 900, Dang-Dong, Gunpo-Si, Gyeonggi-Do (KR). KWON, Soon Jae [KR/KR]; 109-402, Cheongsolmaeul Gyeryong Apt., Geumgok-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do (KR).

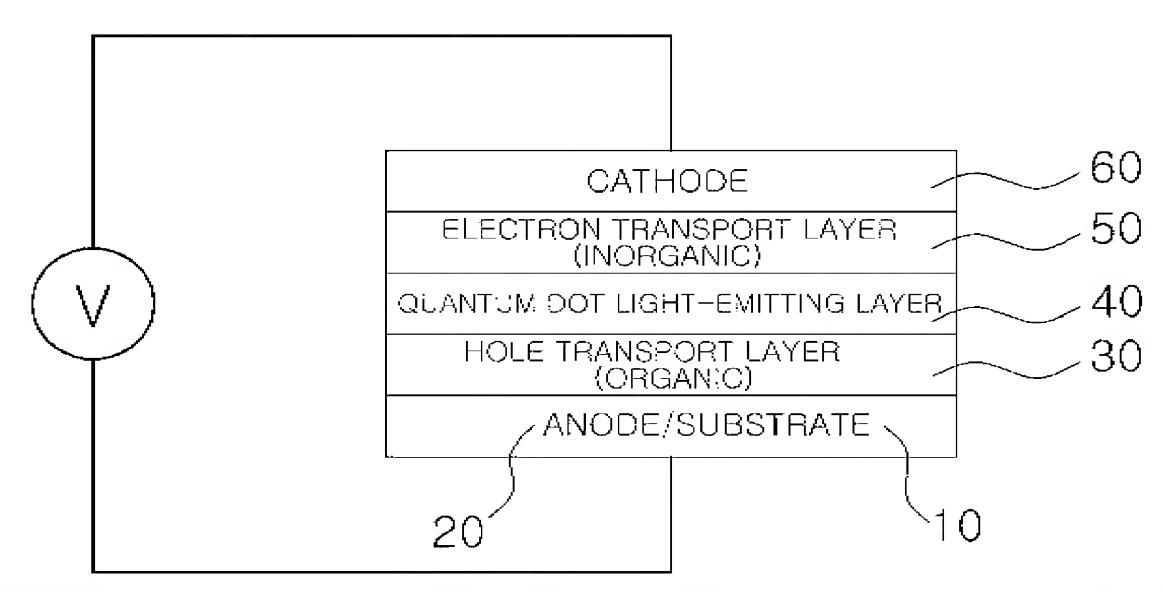
- (74) Agents: KIM, Hak Je et al.; Phoenix International Patent and Law Office, Kwangwhamoon P.O. Box 1828, Seoul 110-618 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## **Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: QUANTUM DOT LIGHT -EMITTING DIODE COMPRISING INORGANIC ELECTRON TRANSPORT LAYER



(57) Abstract: Disclosed herein a quantum dot light-emitting device which has an inorganic electron transport layer. According to the device, an electron transport layer formed by an inorganic materials, thereby providing a high electron transport velocity or electron density and improving a light emitting efficiency. Further, interlayer resistance between electrode and organic-electron transporting layer or between quantum dot light-emitting layer and organic-electron transporting layer is prohibit, thus increasing a light emitting efficiency of diode.



006/098540